



## Society for Conservation Biology

Michele Baumer  
Public Involvement Coordinator  
Missouri Department of Conservation Headquarters  
2901 W. Truman Blvd.  
Jefferson City, MO, 65109

April 26<sup>th</sup>, 2013

Dear Ms. Michele Baumer,

The Missouri Chapter of the Society for Conservation Biology (MOSCB) offers the following comments on the proposed amendment (the addition of subsection 3E to 3 CSR 10-9.110), which would allow the sale of Virile crayfish (also called Northern crayfish, *Orconectes virilis*) to be sold as bait state-wide. MOSCB is a chapter of the larger international organization, the Society for Conservation Biology (SCB), whose mission is to advance the science and practice of conserving the Earth's biological diversity. MOSCB and SCB's membership comprises a wide range of people interested in the conservation and study of biological diversity, including resource managers, educators, government, private conservation workers, and students.

Missouri has at least 35 species of crayfish, representing approximately 10 percent of the U.S. species and including seven species that occur nowhere else in the world. Missouri crayfish are important components of our state's diverse aquatic ecosystems, local economies and heritage cuisines<sup>1</sup>. MOSCB is concerned that sale of *Orconectes virilis* will negatively affect native crayfish diversity and aquatic ecosystems in Missouri.

MOSCB advises the Regulations Committee against the proposed amendment. Research on this species in laboratory experiments and in-situ research in non-Missouri states show that it is highly aggressive<sup>2</sup>, can outcompete native crayfish species and negatively impact ecosystems<sup>3456</sup>, and is invasive<sup>789</sup>. Although no research has been done on the range

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<sup>1</sup> Missouri Department of Conservation website, 2013. <http://mdc.mo.gov/discover-nature/common-plants-and-animals/aquatic-invertebrates/crayfish>. Accessed March 21, 2013.

<sup>2</sup> Bovbjerg, R.V. 1953. Ecological isolation and competitive exclusion in two crayfish, *Orconectes virilis* and *Orconectes immunis*. *Ecology* 51: 225-236.

<sup>3</sup> Carpenter J. 2005. Competition for food between an introduced crayfish and two fishes endemic to the Colorado River basin. *Environmental Biology of Fishes* 72: 335-342.

<sup>4</sup> Chambers PA, Hanson JM, Burke JM and Prepas EE. 1990. The impact of the crayfish *Orconectes virilis* on aquatic macrophytes. *Freshwater Biology* 24: 81-91.

<sup>5</sup> Fernandez, PJ and PC Rosen. 1996. Effects of the introduced crayfish (*Orconectes virilis*) on the stream habitat of the Chiricahua leopard frog (*Rana chiricahuensis*) at the Three Forks, White Mountains, Arizona. Arizona Game & Fish Dept. final report, part I of IV, Phoenix, AZ.

<sup>6</sup> Fernandez, PJ and PC Rosen. 1996. Evidence for crayfish effects on Sonoran mud turtles (*Kinosternon sonoriense*) and associated fauna in a central Arizona stream. Arizona Game & Fish Dept. final report, part III of IV, Phoenix, AZ.

expansion of this species in Missouri, based on research in other states, we advise against the sale of *Orconectes virilis*. This species is native to Missouri; however, its native range is in the prairie regions of Missouri, not throughout the state<sup>10</sup>. If permitted for sale, *Orconectes virilis* may be able to invade new areas; for example, the Ozark Region of Missouri, which is the center of our crayfish diversity and in which many crayfish species (including eight Missouri endemic species) are limited to individual river basins. The effects of this species have not been assessed in Missouri, and therefore it is currently unknown what future impacts may be on native flora and fauna and ecosystems. To prevent potential impacts of a new invasion, we recommend against the sale of *Orconectes virilis* for bait in the state of Missouri. We thank you for your time and consideration.

Sincerely,

A handwritten signature in cursive script that reads "Stephanie G. Schuttler".

Stephanie Schuttler, Ph.D.  
President, The Missouri Chapter of the Society for Conservation Biology

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<sup>7</sup> Clark, W.H., G.T. Lester. 2005. Range Extension and Ecological Information for *Orconectes virilis* (Hagen 1870) (Decapoda:Cambaridae) in Idaho, USA. *Western North America Naturalist* 65(2): 164-169.

<sup>8</sup> Kilian JV, Becker AJ, Stranko SA, Ashton M, Klauda RJ, Gerber J and Hurd M. 2010. The status and distribution of Maryland crayfishes. *Southeastern Naturalist* 9(3): 11-32.

<sup>9</sup> Larson ER and Olden JD. 2011. The state of crayfish in the Pacific Northwest. *Fisheries* 36(2): 60-73.

<sup>10</sup> Pflieger, W.L. 1996. *The Crayfishes of Missouri*. Missouri Department of Conservation, Jefferson City, Missouri.